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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,620	03/18/2004	Krishna Singh		5887

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EXAMINER

PALABRICA, RICARDO J

ART UNIT PAPER NUMBER

3663

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/803,620	Applicant(s) SINGH, KRISHNA	
	Examiner Rick Palabrica	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/15/05, 10/13/05, and 10/25/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/17/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's 8/15/05 Amendment, 10/13/05 First Supplemental Amendment, and 10/25/05 Second Supplemental Amendment, which amended claims 1-30 and added new claim 35, is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 10, 13-18, 19-27, 29, 30, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knappe et al. (U.S. 4,356,146), who discloses a below grade dry storage facility for radioactive materials.

Applicant's claim language reads on Knappe et al.'s system as follows (e.g. see Figs. 1 and 2): a) "body having a cavity" reads on the enclosure (a "body") defined by elements 8, 9, 5 and 12, forming a cavity for the container of radioactive material 4; b) "inlet ventilation duct extending from an above grade inlet to a below grade outlet" reads on the rectangular column (or channel or space) formed by an opening 2 down through airshaft 3 and exiting near the bottom of the cavity; c) "canister" reads on the container of radioactive material 4.

Note from either Fig. 1 or 2 that there is a below grade outlet for the incoming air.

As to claim 4, note that the inlet duct formed by an opening 2 is an elongated

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substantially S-shape.

As to claims 5 and 6, note that there are at least two, distinct inlets 2 and 1 that each forms its own column (or space or channel) down through airshaft 3. One can always form a column with inlet 1 that does not overlap a column formed with inlet 2. These inlets are on opposing sidewalls of the body (e.g., see Fig. 2). Alternatively, the plurality of inlet ventilation ducts represents no more than a duplication of parts having the same function. See MPEP 2144.04. VI. B that states:

"[M]ere duplication of parts has no patentable significance unless a new and unexpected result is produced."

As to claim 7, at least a portion of the inlet ventilation duct is insulated from the body by air, which is an insulator.

As to claim 8, at least a portion of the cavity is insulated from the body by air.

As to claim 10, the inlet ventilation duct and cavity of Knappe et al. are hermetically sealed to the ingress of below grade liquids. Note that the inlet openings 1,2 are above grade and the cavity is protected from liquid ingress by wall 9.

As to claim 13, see col. 4, lines 21+.

As to claims 14-17, Knappe et al. teaches supporting the canister either from the top (see Fig. 1) or from the bottom (see Fig. 2). In Fig. 2, Applicant's claim language, "canister" reads on a horizontal container of radioactive material. As to claim 16 and the plurality of circumferentially spaced support blocks, this is either a matter of optimization (see discussion below) or a case of duplication of parts having the same function. As to claim 17, the material of the support blocks being made of steel is matter of design

choice or cost optimization. Any material that can support the weight of the canister and can be manufactured at reasonable cost can be used.

As to claim 18, Knappe et al. show a roof 5 that coves the cavity from above. As to the roof being "removable", any structure can be removed regardless of how it may be attached to another structure. Such is the case for roof 5 of Knappe et al.

As to claim 19, see Fig. 1 that shows an air plenum between the canister and part of roof 5.

As to claim 20, Applicant's claim language, "shear ring" reads on protective sill 15 that inherently limits lateral movement of the container of radioactive material in the event of an earthquake.

As to claims 21, 22, 23 and 30, see either Fig. 1 or 2 shows duct 13 that allows heated air to exit the cavity. Duct 13 extends through a sidewall of roof 5, and is circumferentially and azimuthally separated from inlets 1, 2.

As to claims 24 and 25, the body, i.e., enclosure defined by elements 8, 9, 5 and 12, rests on a concrete base (see Fig. 1).

As to claim 27, the inlet openings 1 of Knappe et al. are screened (see col. 3, lines 16+).

As to claim 35, Fig. 1 shows a canister in a vertical orientation and the cavity of such size that prohibits the canister from tipping over.

Applicant has not defined the term, "spatial cooperation", between the below grade outlet and the cavity. Absent such definition, the configuration of the below grade

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outlet having a spatial relationship with the cavity, as shown in either Fig. 1 or 2 of Knappe et al., reads on said term.

As to the claim limitations, “major portion of the body positioned below grade” (e.g., see claims 1 and 35) and “major portion of the cavity’s height is below grade” (see claim 29), “approximately 6 to 36 inches of body’s height is above grade” (see claim 26), these are matters of either optimization or design choice. Note, for example, the following statement of Knappe et al. that clearly indicates a proper balancing of the cost of excavating the ground for placement a major portion of the system below grade vs. minimizing the above grade profile of the system for safety purposes:

“The design of the incoming and outgoing air openings or the incoming or outgoing air shafts therefore is subject merely to the requirements of the object of protection, i.e., the protection against external influences such as sabotage, airplane collisions or fires while the flow conduit has subordinate significance.” See col. 1, lines 54+.

“Therefore, there are placed particular criteria of design on the incoming and outgoing air conveyance system. Besides the optimal cooling effect and the at least possible influence of weather on the cooling and the protection of rays present in the dry storehouse in the case of an external accident, as e.g., an airplane collision on the storage place, a surface fire in front of the storage place or pressure waves of an explosion.” See col. 2, lines 1+.

The claims are replete with statements that are either essentially method limitations or statements of intended or desired use. For example, “for receiving and storing a spent nuclear fuel canister”, “for allowing heated air to exit the cavity”, “such that the internal wall prohibits the canister from tipping over”, etc. These clauses, as well as other statements of intended use do not serve to patently distinguish the claimed structure over that of the reference, as long as the structure of the cited references is capable of performing the intended use. See MPEP 2111-2115.

See also MPEP 2114 that states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531.

[A]pparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

The system in the cited reference is capable of being used in the same manner and for the intended or desired use as the claimed invention.

3. Claims 9, 11, 12, 17, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knappe et al. in view of Inkester et al. (U.S. 5,307,388). Knappe et al. disclose the Applicant's claims except for the metal liner for the cavity.

Knappe et al. has been discussed above.

Inkester et al. teach a containment structure made of concrete with a corrosion resistant steel liner for storage of nuclear materials such as nuclear fuel (see Abstract and col. 1, lines 45+). They teach that the steel lining provides additional containment of the radioactive material in the event of rupture of the primary containment for the radioactive material, in the event of an accident, e.g., earthquakes (see col. 1, lines 26+).

As to the manner of connection (by welding) of the metal liners in different sections of the system, e.g., cavity, inlet duct, etc., this is a method limitation (see discussion in section 2 above).

One having ordinary skill in the art would have recognized that both references are in the same field of endeavor, i.e., storage of radioactive materials. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Knappe et al., to include a steel liner to the concrete body to gain the advantages thereof (i.e., provide backup to the primary containment), because such modification is no more than the use of well known expedients for radioactive containment within the nuclear art.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP
November 29, 2005

A handwritten signature in black ink, appearing to read "R. Palabrica". The signature is written in a cursive, flowing style with a large initial "R" and a long, sweeping underline.